This situation has prompted the use in Japan of satellite broadcasting for HDTV and terrestrial broadcasting for EDTV. In the U.S., however, the existence of open UHF channels makes it possible to assign new frequency spectrum for HDTV use, requiring only coordination with other industries, like mobile radios.

NHK highly recommends the adoption of MUSE as the United States' ATV system. It should be emphasized that any use of 6 MHz transmission bandwidth places restrictions on picture quality improvement, and there is little expectation for development of bandwidth compression technology to use less than 6 MHz in the near future. Furthermore, an excessive reliance on bandwidth compression will double receiver costs, and is therefore undesirable. Expansion of the current bandwidth (6 MHz) by a minimum 3 MHz is thus considered best to implement high-quality ATV. New channel additions should be made sequential to the primary channels. As mentioned previously, non-contiguous channels would necessitate multiple demodulators, resulting in lower picture quality because of the difference in the transmission and reception characteristics between the two channels. This is also not desirable from the standpoint of spectrum utilization.

V. ECONOMICS OF MIGRATION TO HDTV

Starting in 1990, the MUSE system will be appearing in homes in the United States, Canada and Japan. The display unit will permit input from laser videodiscs, videotape or a receiver. The receiver will be capable of receiving both MUSE and NTSC formats much as color television sets were capable of showing both color and black-and-white shows.

The inevitable impact of consumers watching some programs in MUSE and other programs in some NTSC variation will be similar to the results of mixed color and black-and-white viewing. Consumers preferred to watch color programs based upon quality and, as a result, black-and-white programming was phased out. When confronted with the difference in quality between MUSE and NTSC-related programs, the consumer will watch the former. Those media which do not or cannot offer MUSE will suffer significant audience loss.

Broadcasters should be permitted to remain competitive by offering MUSE service to their communities. If a transition from NTSC to MUSE is planned now, while spectrum is available, the costs and difficulties of a gradual migration can be minimized and broadcasters will not find themselves shackled with an inferior system

and the inability to find adequate spectrum to compete. The public interest in preserving competitive broadcasting in the local community means that every effort must be made to assist the migration. Without such a transition, consumer demand may force network entertainment and news programs to MUSE transmission through a combination of satellite-to-home and cable, thus by-passing NTSC affiliates.

Every effort must be made to minimize the economic and social impact of these changes on broadcasters. By recognizing the impact of superior MUSE signals in the marketplace and by planning a smooth transition, the Commission may meet this challenge. Excessive attention to short run costs may doom broadcasters to a secondary role in video program delivery.

VI. CONCLUSION

NHK has been engaged in the research and development of HDTV for the past 17 years and is the acknowledged world leader in ATV technology. As a result, NHK has proposed herein the adoption of the MUSE system as the ATV system for the United States. Use of the MUSE family of systems, which incorporates a transitional phase from NTSC to HDTV, will result in the least disruption to American viewers while also keeping the costs of

transitional equipment comparable with currently available systems.

MUSE is the only ATV system which has been subjected to stringent tests using actual hardware. It is based on actual frequency and transmission considerations. It has become the standard by which other systems are judged. In evaluating any other system, weight must be given to whether such a system can measure up under actual transmission conditions. The American broadcasting community must stay current with technology. As Chairman Markey stated,

> History proves that if an improved telecommunications product is on the market, generally speaking, Americans will buy it. Americans have a near insatiable appetite for high-tech video and audio products. Recall that over the past six years, 2 million American households have spent $3500 apiece on satellite dishes. And, in fewer than 10 years, millions of Americans have spent hundreds of millions, if not billions, of dollars on video cassette recorders and tapes. Similarly, compact discs have all but replaced the vinyl record album.

The MUSE technology and patents are available now to U.S. manufacturers to usher in the next generation of television viewing. The MUSE family also includes an NTSC-compatible transitional system to ease the shift to HDTV. It must be stressed that MUSE is the only true HDTV. Other systems offer inferior picture quality, and they cannot provide for the transition to full HDTV.

This system is the highest quality system available and should be made the standard for the United States, as representative of the true American tradition.

Respectfully submitted,

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